INVENTORY OF RARE, THREATENED AND ENDANGERED PLANT AND ANIMAL SPECIES AT COLONIAL NATIONAL HISTORICAL PARK, YORKTOWN CREEK DRAINAGE

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Table of Contents

INTRODUCTION

In June 1994, the Colonial National Historical Park, National Park Service, U.S. Department of the Interior, contracted the Virginia Department of Conservation and Recreation's Division of Natural Heritage (DCR-DNH) to conduct a survey of lands within the Park along the Yorktown Creek drainage. The purpose of the survey was to determine the presence of any plant and animal species listed as rare, threatened, or endangered by either the Federal or Virginia State government or determined to be candidates for listing by such agencies. The survey was prompted by a proposal to expand the York County Courthouse and to construct a river walk near the mouth of Yorktown Creek.

RESULTS

Plants

The plant portion of the survey was conducted by DCR-DNH field botanist Allen Belden on August 2, 1994. No rare, threatened, or endangered plants were located during the survey. However, populations of three plant species on the Virginia Plant Watchlist were located. Watchlist plants are species which do not appear to be of high conservation concern at this time, but for which more information is needed. The three watchlist plant species found are *Malaxis spicata (=M. floridana)(Florida's* adder's-moutli), *Ponthieva racemosa* (shadow-witch), and *Chasmanthium laxum var. sessiliflorum (= Uniola sessitiflorum, C. sessiliflorum)(Iong-leaf* spikegrass).

The survey area includes a small stretch of sandy beach flanking the mouth of Yorktown Creek along the York River, tidally-influenced salt marshes at the mouth of Yorktown Creek which grade into fresh marshes upstream, forested bottomland wetlands along a series of small

I freshwater streams which drain into the Creek, steep-walled ravines at the heads of these small streams, and extensive adjacent uplands.

The beach area fronting the York River was searched for the State rare plant *Chamaes-vce bombensis (=Euphorbia ammaniodes)(southern* beach spurge), but this species was not found. The beach supports *Cakile edentula* (sea rocket) and native grasses such as *Spartina patens (salt* meadow cordgrass), *Spanina alterniflora* (smooth cordgrass), *Panicum virgatum* (switchgrass), *and Panicum amarum* (beachgrass). A number of non-native species were also observed, particularly along Route 238. These include two particularly aggressive species -- *Sorghani halapense* (Johnson grass) and *Foeniculum vulgare* (fennel).

Salt marshes near the mouth of Yorktown Creek, in the vicinity of a proposed walkway Just south of Route 238, appeared to be in excellent condition, and exotic species were not observed away from roads. Vegetation in these marshes consists of a mosaic of salt meadows with *Spartina patens, Distichlis spicata* (salt grass), and *Juncus gerardii* (black grass) interspersed with stands of *Spartina alterniflora and Scirpus robustus* (saltmarsh bullrush). *Borrichia frutescens* (sea oxeye) was also observed. The invasive grass *Phragmites austratis (common* reed) was notably absent from this area. This species often invades after disturbance, and walkway construction could provide such a conduit. It is likely, however, that marshes in this area are too saline to support this undesirable grass.

Moving upstream along the Creek to the south, the salt marshes grade into freshwater marshes, where dominant species include *Peltandra virginica* (arrow-arum) and *Decodon verticillatus* (water-willow).

These marshes are fed by numerous small, often intermittent tributary streams which drain the uplands within the Creek's watershed area. The ravines traversed by these streams are usually narrow and steep-walled at their heads, where small exposures of Miocene shell deposits were observed in several places. Closer to the creek, these ravines broaden out and support bottomland forested wetlands. Prevalent woody species in these forested bottomlands include *Acer rubrum* (red maple), *Platanus occidentalis (sycamore), Liriodendron tulipifera* (tulip tree), *Fraxinus pennsylvanica* (green ash), and *Carpinus caroliniana* (hornbeam). Characteristic native herbs include *Saururus cernuus* (lizard's tail), *Senecio aureus* (heart-leaved groundsel), *Cinna arundinacea* (common woodreed), *Gyceria striata* (fowl mannagrass), Pilea *fontana* (clearweed), and *Juncus effusus* (soft rush). *Acer barbatum* (southern sugar maple) is often the dominant tree on steep slopes leading down to these bottoms.

Forested bottomlands east of Route 17, and particularly those north of the Colonial Parkway in the vicinity of the proposed Courthouse expansion, appear to have a long history of disturbance. Erosion is a frequent problem along ravine slopes and many non-native plant species were observed. The aggressive Asian grass *Microstegium vimineum (Eulalia viminea)(Nepal* microstegium) has supplanted native herbaceous vegetation throughout much of these bottomlands, forming dense monotypic stands. A *Ligustrum* (privet) species, *Mahonia bealei* (oregon grape), and *Lonicerajaponica* (Japanese honeysuckle) are among other prevalent exotics in the area.

Ravines and bottoms located to the west of Route 17 and north and east of the Colonial Parkway are in much better shape. *Microstegium* is still present in these ravines, but to a much lesser extent. A good-sized population of the watchlist orchid *Malaxis spicata* was observed in wet areas within three neighboring ravines, in the zone where those ravines begin to broaden out into forested bottomland wetlands. About 90 individuals were counted, and additional plants appeared to be still emerging. Several hundred individuals of the watchlist orchid *Ponthieva racemosa* were found in the same three ravines and in a fourth ravine located to the north. Both of these orchids are calciphiles and are found near Miocene shell deposits which leach calcium. Threats to these orchids include *Microstegium* and beaver activity which could flood population areas. A large beaver pond was located a short distance downstream from most of the *Malavis* population.

Uplands within the survey area are cloaked in forests generally dominated by various mixtures *of Pinus taeda* (loblolly pine), *Quercus alba* (white oak), *Fagus grandifolia* (American beech), *Liriodendron tulipifera, Acer barbatum, and Quercus rubra* (red oak). Again, areas in the vicinity of the proposed Courthouse expansion appeared to have a history of disturbance, while the area west of Route 17 appeared to be the most pristine. A population of the watchlist grass *Chasmanthium laxum var. sessiliflorum* was found in this latter area. Four small colonies of the grass were observed, consisting of a total of about 75 fruiting stems as well as additional vegetative plants. Additional colonies of this species are likely to occur in the area. Exotic species do not appear to be a problem here, and the grass population appears to face few other threats. The palpability of the grass to deer is unknown, but deer browse is a potential problem. No evidence of deer browse on the grass was observed during the survey, however. Maps are attached which show the approximate locations of all three watchlist plant species (Figures 1, 2 and 3).

Animals

The animal portion of the survey was conducted by DCR-DNH zoologists Steven Roble and Dirk Stevenson on August 25, 1994. No rare, threatened, or endangered animals were located during the survey. However, populations of one species on the DNH Watchlist were documented. Watchlist animals are species which do not appear to be of high conservation concern at this time, but for which more information is needed. The watchlist species found was *Gammarus pseudolimnaeus* (Northern spring

amphipod), an aquatic crustacean. This species had appeared on the DCR-DNH Rare Animal List, but recent collections indicate that it is i-nore widely distributed in eastern Virginia than previously believed; hence, *G. pseudolimnaeus was* "downlisted" and removed from the Rare Animal List, and is now a watchlist species.

G.pseudolimnaeus were found at a number of sites along Yorktown Creek or within the creek's watershed, on the south side of Colonial Parkway Road as well as north of Parkway Road and west of Route 17 (Figure 4). *G. pseudolimnaeus* was common to abundant at all collection sites, which included ravine springs, first order streams, several hillside seepages, and the headwaters of Yorktown Creek itself.

MANAGEMENT RECOMMENDATIONS

Plants

Management actions may be needed to maintain the three populations of watchlist plant species found during the survey. The two orchid populations should be monitored to determine the impacts of *Microstegium* and control measures taken, if necessary. The flooding of population areas would be harmful during the growing season and perhaps at any time. Therefore, beaver activity should be monitored in the vicinity of the populations and beaver dams removed if they threaten to flood population areas. In addition, human activities which could result in erosion and/or sedimentation within the ravines where the populations occur should be avoided. The *Chasmanthium laxum var. sessitiflorum* population should be monitored to determine the impacts of deer browse. If deer browse threatens the population, the use of deer enclosures to prevent deer access should be considered.

Animals

Northern spring amphipod populations present on-site are thought to be large and mantaning their numbers at this time. Any activities which could alter surface or groundwater flow or result in sedimentation, erosion, or groundwater contamination within the Yorktown Creek watershed should be avoided.